EVALUATION OF THE BAD RIVER WETLANDS—2006

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EVALUATION OF THE BAD RIVER WETLANDS, 2006

Introduction

This report summarizes the diatom community of wetlands on the Bad River Indian Reservation that were sampled in 2006. The evaluation was performed using the alga in the group diatoms. Diatoms are a type of algae that possess siliceous cell walls and are usually abundant, diverse, and well preserved in sediments. They are especially useful because they are ecologically diverse and their ecological optima and tolerances can be quantified. Diatoms are strongly affected by the chemical composition of their surroundings. Certain taxa are usually found under nutrient poor conditions while others are more common under elevated nutrient levels.

Methods

Samples were received from the Bad River Natural Resources Department. The samples consisted of the top 0.5 cm of sediment collected from the 12 wetlands in 2006 on the Bad River Indian Reservation (Figure 1). This material should contain an integrated sample of the diatoms that have recently accumulated in these wetlands.

For all of the samples, a small amount of material (0.1-0.2 g) was placed in a labeled tall beaker and 30% H_2O_2 is added. After approximately 2 minutes, a small amount of potassium permanganate was added. After the sample has digested, the digested sample is transferred to a labeled 50 ml centrifuge tube. The sample is washed 4 times with deionized water.

After the final washing, the sample is transferred to a 50 ml beaker and deionized water is added. Number 1 coverslips, which have been stored in 70% EtOH are placed on a drying table and the diatom/sediment mixture is added to the coverslips. The table is marked into a numbered grid and the identity of each coverslip is recorded in a logbook. After the sample has dried, the coverslip is fixed to a microscope slide with Naphrax. The identity of each sample is etched onto the slide with a diamond tipped scribe. Paper labels are also affixed to the slides. For each sample at least 400 valves are enumerated. Sample counts were recorded in a computer counting program and this information was transferred to an Excel

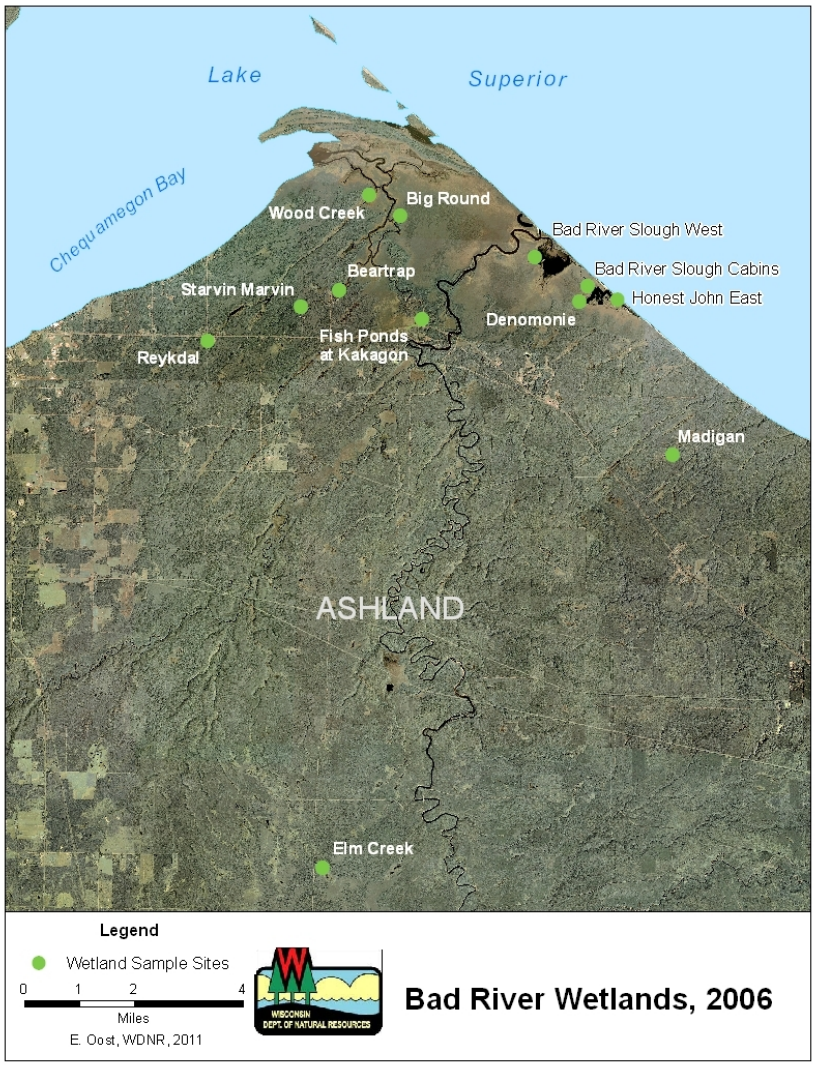

Figure 1. 2006 wetland sites on the Bad River Indian Reservation.

spreadsheet. Internationally recognized taxonomic keys were utilized for identification. These keys include Patrick & Reimer (1966, 1975), Camburn et al. (1984-86), Krammer & Lange-Bertalot (1986, 1988, 1991a,b), Krammer (1997a, b), and Krammer (2000) Camburn and Charles (2000), Lange-Bertalot (2001) and Siver et al. (2005). All samples are archived at the DNR Science Operations Center in Madison, WI.

Results

All of the sites contained a diverse diatom community with diversity ranging from 3.40 to 4.09 (Figure 2). The site with the most diverse diatom community was Wood Creek while the site with the lowest diversity was Madigan Road. In general the diversity was higher than in

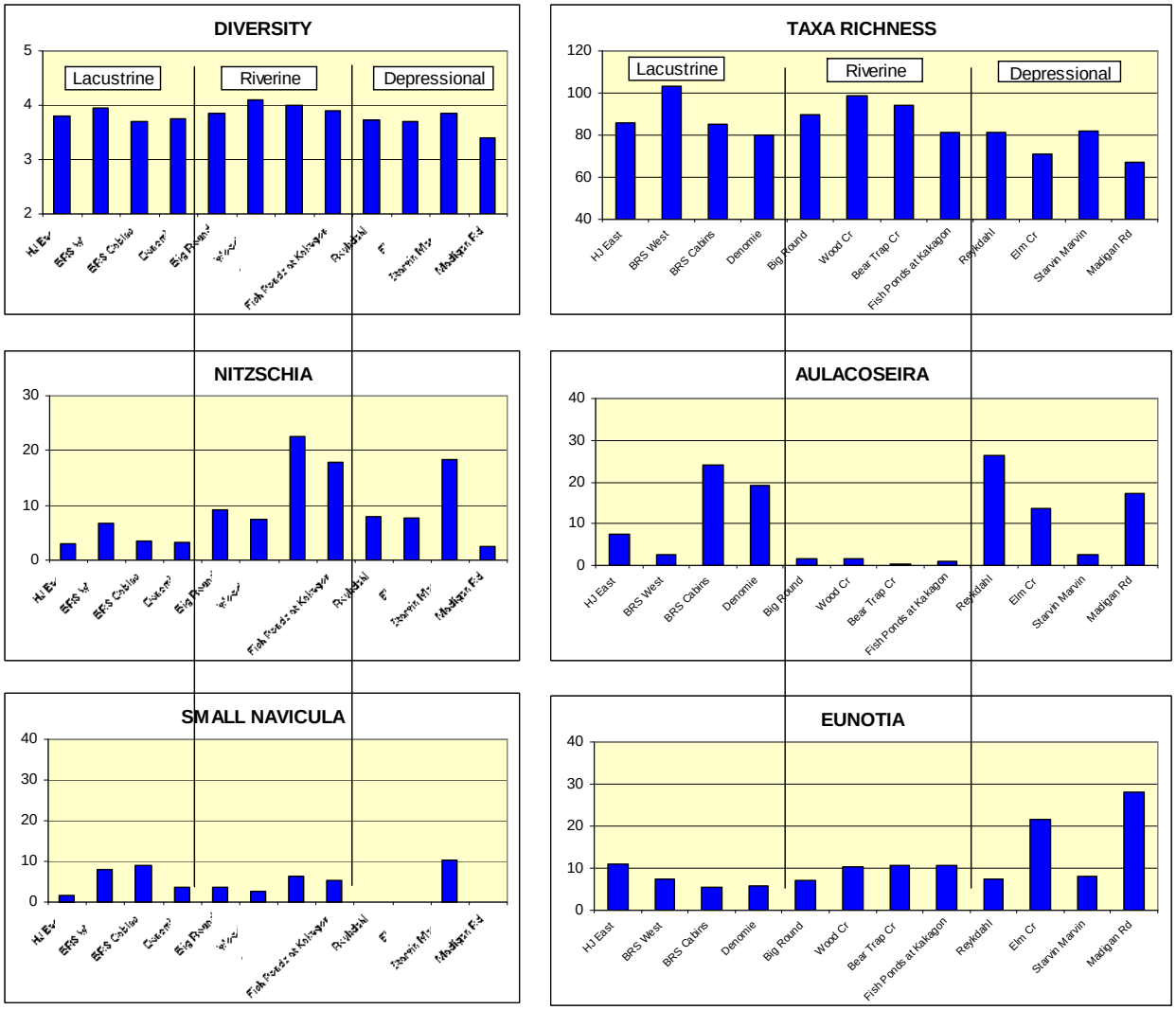

Figure 2. Summary indices from the 2006 sites. Sites are grouped into lacustrine, riverine, and depressional.

previous years. This mostly reflects a change in diatom taxonomy with research resulting in a separation of species into new taxonomic criteria. In past years the Wood Creek site has contained some of the highest diversity and this has not changed.

The highest taxa richness was found at the Bad River Slough-West site (Figure 2). This site has contained a large number of species in the past. In general, the depressional wetland sites have lower richness which reflects the more homogeneous environment compared with the riverine and lacustrine sites.

The highest amount of *Nitzschia*, which generally indicates higher nutrient levels (van Dam et al. 1994), occurred at the Bear Trap Creek site. Two other sites, Fish Ponds at Kakagon and Starvin Marvin also had higher amounts of this diatom group.

The riverine sites generally had the lowest amounts of the genera *Aulacoseira*. This is to be expected since these species generally are found in standing waters such as lakes. The depressional wetlands had higher numbers of *Aulacoseira* (Figure 2) than in past years. The highest amount of *Aulacoseira* in the lacustrine sites was found at the Bad River Slough-Cabins site while the Denomie site also had elevated numbers. The depressional site, Reykdahl, continued to have significant amount of *Aulacoseira* (Figure 2) as in past years and had higher numbers than any of the lacustrine sites.

The trophic ranking of van Dam et al. (1994) was used to develop a Diatom Trophic Index (DTI) for these wetland samples. This index has a range from 1 to 6 with the lower value indicating oligotrophic conditions. Figure 3 shows the ranking of each site. The site with the

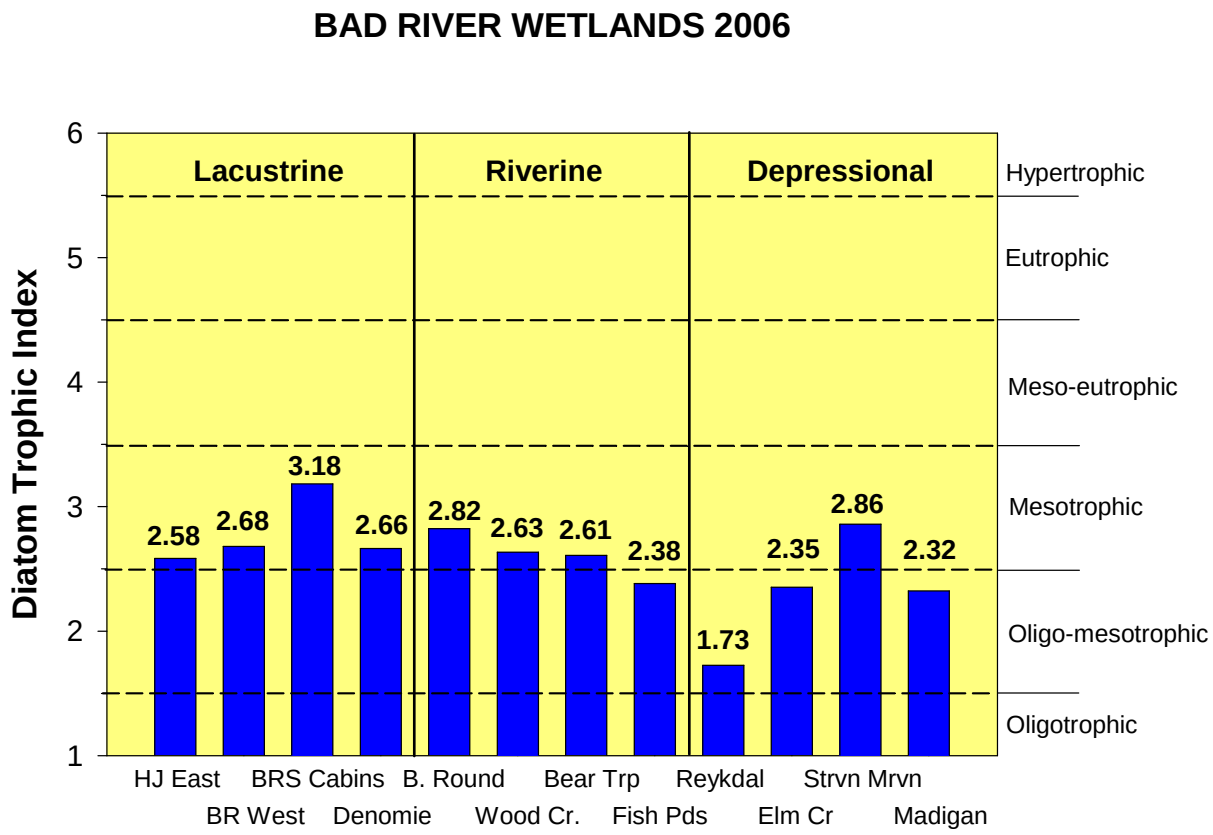

Figure 3. Diatom Trophic Index for the 12 wetland sites in 2006. Lower numbers indicate better water quality

lowest ranking (lowest nutrients) was Reykdal with a value of 1.73 (Figure 3), which classifies this wetland as oligo-mesotrophic. The depressional wetlands generally had a better DTI. The exception was the Starvin Marvin site which was classified as mesotrophic. All of the lacustrine and riverine sites, with the exception of Fish Ponds at Kakagon, classified as mesotrophic with the Bad River Slough-cabins having the worst value at 3.18.

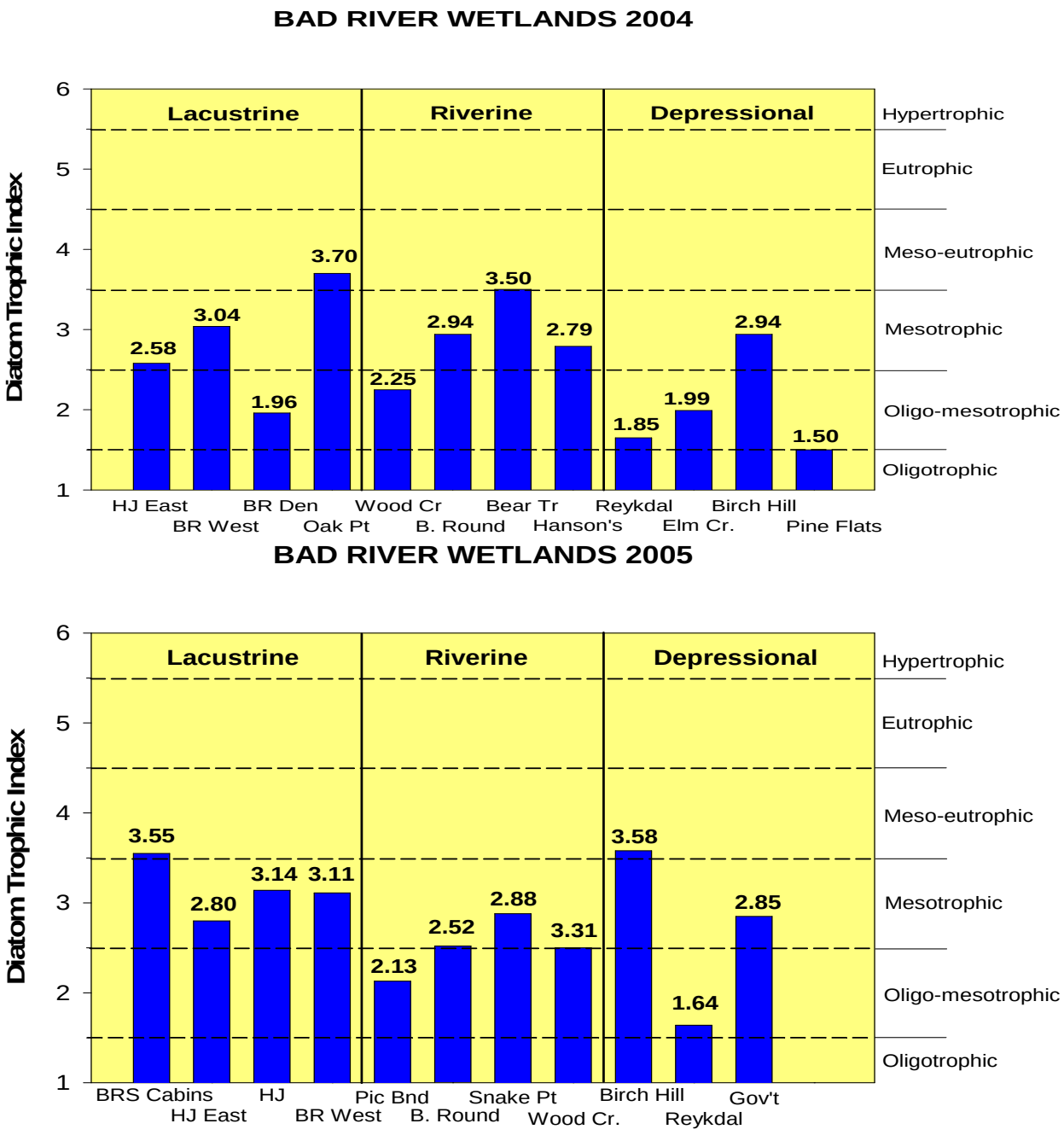

Figure 4. Corrected Diatom Trophic Index for 2004 and 2005. Lower numbers indicate better water quality

In the report of the diatom community for the 2004-05 wetland samples an error was made in the calculation of the DTI. This error resulted in higher values. The corrected graphs for these year are shown in Figure 4. A few of the sites are still classified as meso-eutrophic but most of them are now in the mesotrophic class. In each year some sites are classified as oligo-mesotrophic. The site Bad River Slough-cabins is generally the highest on the mesotrophic class, while Reykdal has the best water quality.

Table 1 lists the Diatom Trophic Index for all of the sites for the years 2001-2006. At least one site from each of the categories of wetlands has been sampled for at least 5 consecutive years. Generally the DTI of the depressional sites (Reykdal, Elm Creek) remain in the same narrative category in all of the years. For the riverine sites (Wood Creek, Big Round) also remain in the same narrative category. For the lacustrine sites (Honest John-East, Bad River-West) they also remain in the same narrative category.

Two sites in each wetland type (depressional, riverine, lacustrine) were selected as reference sites. These are: 1)depressional—Reykdal and Elm Creek, 2) riverine—Wood Creek and Big Round, 3) lacustrine—Honest John-East and Bad River Slough-West. These sites have been sampled at least 5 years. The site with the lowest DTI and thus the best water quality was Reykdal with a mean value of 1.92 which places it in the oligo-mesotrophic classification. The site with the highest DTI and thus the more degraded water quality was the lacustrine site Bad River Slough-West with a mean value of 2.93 which places it in the mesotrophic classification. Most of these sites have displayed similar DTI each year. The exception is the depressional site Reykdal which has improved water quality for the last 3 sampled years (2004-06).

In summary, the water quality of these wetlands continues to be better than average. The best water quality was found in the depressional sites. Reykdal continues to be one of the best sites. The worst site in 2006 was Bad River Slough-Cabins but this site was in the mesotrophic classification. While the reference sites generally have some of the best water quality in the lacustrine and depressional wetland types, the reference sites in the riverine group have the worse water quality.

Table 1. Diatom Trophic Index comparison of sites sampled in 2001-2006.

		2001	2002	2003	2004	2005	2006
Depressional	Reykdal	2.34	2.14	2.03	1.65	1.64	1.73
	Elm Creek	3.04	2.98	2.53	1.99		2.35
	Birch Hill	3.98			2.94	3.58	
	Caville Rd.			2.93			
	Madigan			3.03			2.32
	Govt Oxbow					2.85	
	Pine Flats				1.50		
	Frost		3.76				
	Starvin Marvin						2.86
	Bad River @ Mouth		2.95				
Riverine	Wood Creek		2.71	2.73	2.25	2.50	2.63
	Big Round		3.24	2.89	2.94	2.52	2.82
	Little Round			2.81			
	Bear Trap @ Cabins		2.91		3.70		2.61
	Snake Point					2.88	
	Pickerel Bend					2.13	
	NE Slough			2.76			
	Kaggerville	3.49	4.23				
	Fish Ponds @ Kakagon						2.38
	Hansen's Swamp				2.79		
Lacustrine	Honest John-East		2.85	2.72	2.58	2.80	2.58
	Honest John-Mid		2.38	2.85			
	Honest John					3.14	
	Bad River-West		2.82	3.01	3.04	3.11	2.68
	Bad River-North			3.55			
	Bad River @ Cabins					3.89	3.18
	Bad River @ Denomie		2.65		21.96		2.66
	Oak Pt. @ Cabins				3.50		
Unknown	Birch Hill-Sewage	4.34					
	Govt @ Houses	3.83					
	Elm Hoist	3.58					
	Elm Hoist Logging	3.77					

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BAD RIVER WETLANDS		
Ashland County		
HONEST JOHN EAST		
2006		
	Number	Prop.
TAXA		
Achnanthes spp.	17	0.042
Achnanthes biasolettiana var. subatomus Lange-Bertalot	3	0.007
Achnanthes lacus-vulcani Lange-Bertalot	4	0.010
Achnanthes levanderi Hustedt	1	0.002
Achnanthidium minutissimum (Kützing) Czarnecki	20	0.050
Achnanthidium minutissimum var. gracillima (Meister) Lange-Bertalot	15	0.037
Achnanthidium sp. 1 PJG	4	0.010
Adlafia minuscula (Grunow) Lange-Bertalot	4	0.010
Amphora ovalis (Kützing) Kützing	2	0.005
Asterionella formosa Hassal	5	0.012
Aulacoseira ambigua (Grunow) Simonsen	18	0.045
Aulacoseira granulata (Ehrenberg) Simonsen	2	0.005
Aulacoseira italica var. tenuissima (Grunow) Simonsen	3	0.007
Aulacoseira lacustris (Grunow) Krammer	3	0.007
Aulacoseira nygaardii Camburn	1	0.002
Aulacoseira spp.	2	0.005
Aulacoseira VV	1	0.002
Brachysira brebissonii Ross	2	0.005
Brachysira microcephala (Grunow) Compère	12	0.030
Chamaepinnularia witkowskii (Lange-Bertalot et Metzeltin) Kulikovskiy et Lange Bertlot	2	0.005
Cocconeis placentula var. placentula Ehrenberg	3	0.007
Cyclostephanos dubius (Frick) Round	2	0.005
Discotella stelligera (Hustedt) Houk et Klee	5	0.012
Encyonema lunatum (Smith) Van Heurck	4	0.010
Encyonema silesiacum (Bleisch) Mann	3	0.007
Encyonopsis subminuta Krammer & Reichardt	7	0.017
Eunotia bilunaris (Ehrenberg) Mills	1	0.002
Eunotia curvata var. subarcuata (Näegeli) Woodhead et Tweed	3	0.007
Eunotia flexuosa Brébisson ex Kützing	2	0.005
Eunotia formica Ehrenberg	2	0.005
Eunotia incisa Smith ex Gregory	16	0.040
Eunotia pectinalis var. ventricosa (Ehrenberg) Grunow	5	0.012
Eunotia vanheurckii Patrick	2	0.005
Eunotia spp.	13	0.032
Fragilaria capucina var. gracilis (Østrup) Hustedt	1	0.002
Fragilaria crotonensis Kitton	2	0.005
Fragilaria sepes Ehrenberg	4	0.010
Fragilaria vaucheriae (Kützing) Petersen	1	0.002
Fragilaria (GV) 14-15/10 u central area	2	0.005
Frustulia crassinervia (Brebisson) Lange-Bertalot et Krammer	2	0.005
Gomphonema acuminatum Ehrenberg	2	0.005
Gomphonema affine var. insigne (Gregory) Andrews	1	0.002
Gomphonema parvulum (Kützing) Kützing	3	0.007
Gomphonema spp.	3	0.007
Navicula cryptocephala Kützing	1	0.002
Navicula difficillima Hustedt	2	0.005
Navicula lanceolata (Agardh) Ehrenberg	1	0.002
Navicula leptostriata Jörgansen	1	0.002
Navicula tantula Hustedt	1	0.002
Navicula ventralis Krasske	1	0.002
Navicula spp.	5	0.012
Nitzschia gracilis Hantzsch ex Rabenhorst	4	0.010
Nitzschia linearis (Agardh ex Smith) Smith	1	0.002
Nitzschia palea var. debilis (Kützing) Grunow	7	0.017
Nupela fennica (Hustedt) Lange-Bertalot in Krammer and Lange-Bertalot	7	0.017
Nupela vitiosa (Schimanski) Siver et Hamilton	1	0.002
Nupela wellneri (Lange-Bertalot) Lange-Bertalot	3	0.007
Nupela sp.	2	0.005
Pinnularia biceps Gregory	2	0.005
Pinnularia pseudogibba Krammer	1	0.002
Pinnularia rupestris Hantzsch	2	0.005
Pinnularia sinistra Krammer	1	0.002
Pinnularia spp.	2	0.005
Planothidium biporomum (Hohn et Hellerman) Lange-Bertalot	2	0.005
Planothidium dubium (Grunow) Round et Bukhtiyarova	4	0.010
Pseudostaurosira parasitica (Smith) Morales	3	0.007
Pseudostaurosira pseudoconstruens (Marciniak) Williams et Round	2	0.005
Pseudostaurosira trainorii Morales	2	0.005
Rossithidium linearis (Smith) Round et Bukhtiyarova	8	0.020
Rossithidium petersennii (Hustedt) Round et Bukhtiyarova	2	0.005
Sellaphora pupula (Kützing) Meresckowsky	2	0.005
Sellaphora rectangularis (Gregory) Lange-Bertalot et Metzeltin	1	0.002
Sellaphora seminulum (Grunow) Mann	7	0.017
Stauroneis anceps fo. gracilis Rabenhorst	1	0.002
Stauroneis kriegeri Patrick	2	0.005
Stauroneis smithii Grunow	1	0.002
Staurosira construens Ehrenberg	4	0.010
Staurosira construens var. binodis (Ehrenberg) Hamilton	2	0.005
Staurosira construens var. venter (Ehrenberg) Hamilton	8	0.020
Staurosirella pinnata (Ehrenberg) Williams et Round	46	0.114
Staurosirella pinnata var. lancettula (Schumann) Siver et Hamilton	28	0.069
Synedra rumpens var. familiaris (Kützing) Hustedt	2	0.005
Synedra sp.	2	0.005
Tabellaria fenestrata (Lyngbye) Kützing	1	0.002
Tabellaria flocculosa (strain III) sensu Koppen	5	0.012
Tabellaria flocculosa var. linearis Koppen	8	0.020
Tabellaria spp.	2	0.005
unknown pennate	3	0.007
TOTAL	403	1.000

BAD RIVER WETLANDS
Ashland County

BAD RIVER SLOUGH WEST

2006

TAXA	Number	Prop.
Achnanthes spp.	8	0.020
Achnanthes subatomoides (Hustedt) Lange-Bertalot et Archibald	2	0.005
Achnanthes suchlandtii Hustedt	2	0.005
Achnanthidium exiguum (Grunow) Czarnecki	1	0.003
Achnanthidium minutissimum (Kützing) Czarnecki	30	0.075
Achnanthidium minutissimum var. gracillima (Meister) Lange-Bertalot	4	0.010
Achnanthidium pyrenaicum (Hustedt) Kobayasi	2	0.005
Adlafia suchlandtii (Hustedt) Lange-Bertalot	2	0.005
Amphipleura pellucida (Kützing) Kützing	1	0.003
Aulacoseira ambigua (Grunow) Simonsen	3	0.008
Aulacoseira lacustris (Grunow) Krammer	1	0.003
Aulacoseira lirata (Ehrenberg) Ross	4	0.010
Aulacoseira pusilla (Meister) Tuji et Houki	1	0.003
Aulacoseira spp.	1	0.003
Brachysira microcephala (Grunow) Compère	1	0.003
Brachysira serians var. acuta (Hustedt) Vyverman	1	0.003
Caloneis ventricosa var. truncatula (Grunow) Meister	2	0.005
Cavinula pseudoscutiformis	2	0.005
Chamaepinnularia witkowskii (Lange-Bertalot et Metzeltin) Kulikovskiy et Lange Bertlot	1	0.003
Cocconeis placentula var. euglypta (Ehrenberg) Grunow	5	0.013
Cocconeis placentula var. lineata (Ehrenberg) Van Heurck	2	0.005
Cocconeis placentula var. placentula Ehrenberg	13	0.033
Cocconeis placentula (RV)	11	0.028
Cymbella proxima Reimer	2	0.005
Cymbella spp.	4	0.010
Decussata placenta (Ehrenberg) Lange-Bertalot et Metzeltin	1	0.003
Diploneis sp.	2	0.005
Discotella pseudostelligera (Hustedt) Houk et Klee	2	0.005
Encyonema norvegicum (Grunow) Mills	2	0.005
Encyonopsis subminuta Krammer et Reichardt	2	0.005
Eolimna minima (Grunow) Lange-Bertalot	5	0.013
Eolimna subminuscula Manguin	1	0.003
Epithemia adnata (Kützing) Brébisson	1	0.003
Epithemia turgida (Ehrenberg) Kützing	3	0.008
Epithemia spp.	2	0.005
Eunotia bilunaris (Ehrenberg) Mills	6	0.015
Eunotia flexuosa Brébisson ex Kützing	1	0.003
Eunotia formica Ehrenberg	3	0.008
Eunotia incisa Smith ex Gregory	6	0.015
Eunotia praerupta Ehrenberg	1	0.003
Eunotia praerupta var. bidens (Ehrenberg) Grunow	3	0.008
Eunotia vanheurckii Patrick	2	0.005
Eunotia spp.	8	0.020
Fragilaria capucina var. mesolepta Rabenhorst	1	0.003
Fragilaria vaucheriae (Kützing) Petersen	3	0.008
Fragilaria (GV) 14-15/10 u central area	18	0.045
Gomphonema affine var. insigne (Gregory) Andrews	2	0.005
Gomphonema gracile Ehrenberg emend Van Heurck	3	0.008
Gomphonema minutum (Agardh) Agardh	3	0.008
Gomphonema parvulum (Kützing) Kützing	3	0.008
Gomphonema subclavatum (Grunow) Grunow	1	0.003
Gomphonema spp.	14	0.035
Hippodonta capitata (Ehrenberg) Lange-Bertalot, Metzeltin et Witkowski	3	0.008
Karayevia clevei (Grunow) Bukhtiyarova	2	0.005
Karayevia laterostrata (Hantzsch) Bukhtiyarova	2	0.005
Mayamaea atomus var. permitis (Hustedt) Lange-Bertalot	1	0.003
Melosira varians Agardh	2	0.005
Navicula cryptotenella Lange-Bertalot ex Krammer et Lange-Bertalot	7	0.018
Navicula difficillima Hustedt	1	0.003
Navicula lanceolata (Agardh) Ehrenberg	1	0.003
Navicula menisculus Schumann	1	0.003
Navicula obdurata Hohn et Hellermann	2	0.005
Navicula phyllepta Kützing	2	0.005
Navicula pseudoventralis Hustedt	4	0.010
Navicula tantula Hustedt	5	0.013
Navicula tripunctata (Müller) Bory	1	0.003
Navicula small	4	0.010
Navicula spp.	6	0.015
Neidium spp.	1	0.003
Nitzschia amphibia Grunow	15	0.038
Nitzschia fonticola Grunow	2	0.005
Nitzschia gracilis Hantzsch ex Rabenhorst	2	0.005
Nitzschia palea var. debilis (Kützing) Grunow	4	0.010
Nitzschia spp.	4	0.010
Nupela fennica (Hustedt) Lange-Bertalot in Krammer and Lange-Bertalot	8	0.020
Nupela vitiosa (Schimanski) Siver et Hamilton	6	0.015
Nupela sp.	2	0.005
Planothidium dubium (Grunow) Round et Bukhtiyarova	5	0.013
Planothidium frequentissimum (Lange-Bertalot) Lange-Bertalot	1	0.003
Planothidium lanceolatum (Brébisson ex Kützing) Lange-Bertalot	11	0.028
Planothidium robustius (Hustedt) Lange-Bertalot	1	0.003
Pseudostaurosira brevistriata (Grunow) Williams et Round	10	0.025
Pseudostaurosira parasitica (Smith) Morales	2	0.005
Pseudostaurosira trainorii Morales	2	0.005
Rhopalodia gibba (Ehrenberg) Müller	3	0.008
Rossithidium linearis (Smith) Round et Bukhtiyarova	5	0.013
Rossithidium petersennii (Hustedt) Round et Bukhtiyarova	2	0.005
Rossithidium pusillum (Grunow) Round et Bukhtiyarova	2	0.005
Sellaphora sp.	2	0.005
Stauroneis spp.	1	0.003
Staurosira construens Ehrenberg	2	0.005
Staurosirella leptostauron (Ehrenberg) Williams et Round	1	0.003
Staurosirella leptostauron var. dubia (Grunow) Edlund	1	0.003
Staurosirella pinnata (Ehrenberg) Williams et Round	3	0.008
Staurosirella pinnata var. lancettula (Schumann) Siver et Hamilton	11	0.028
Synedra acus Kützing	2	0.005
Synedra rumpens var. familiaris (Kützing) Hustedt	2	0.005
Synedra sp.	3	0.008
Tabellaria fenestrata (Lyngbye) Kützing	2	0.005
Tabellaria flocculosa (strain IV) sensu Koppen	1	0.003
Tabellaria flocculosa var. linearis Koppen	1	0.003
Tabellaria spp.	2	0.005
Tryblionella littoralis (Grunow in Cleve and Grunow) Mann in Round, Crawford and Mann	1	0.003
unknown pennate	28	0.070
TOTAL	400	1.000

BAD RIVER WETLANDS		
Ashland County		
BAD RIVER SLOUGH CABINS		
2006		
	Number	Prop.
TAXA		
Achnanthes spp.	4	0.010
Achnanthes biasolettiana var. subatomus Lange-Bertalot	2	0.005
Achnanthes lemmermannii Hustedt	1	0.003
Achnanthes levanderi Hustedt	1	0.003
Achnanthidium minutissimum (Kützing) Czarnecki	16	0.040
Achnanthidium minutissimum var. scotica (Carter) Lange-Bertalot	2	0.005
Achnanthidium sp. 1 PJG	4	0.010
Asterionella formosa Hassal	1	0.003
Aulacoseira ambigua (Grunow) Simonsen	38	0.095
Aulacoseira granulata (Ehrenberg) Simonsen	9	0.023
Aulacoseira italica (Ehrenberg) Simonsen	6	0.015
Aulacoseira italica var. tenuissima (Grunow) Simonsen	17	0.043
Aulacoseira lirata (Ehrenberg) Ross	7	0.018
Aulacoseira nygaardii Camburn	11	0.028
Aulacoseira pusilla (Meister) Tuji et Houki	2	0.005
Aulacoseira tenella (Nygaard) Simonsen	1	0.003
Aulacoseira VV	5	0.013
Aulacoseira spp.	4	0.010
Chamaepinnularia witkowskii (Lange-Bertalot et Metzeltin) Kulikovskiy et Lange Bertlot	2	0.005
Cocconeis placentula (RV)	5	0.013
Cocconeis placentula var. euglypta (Ehrenberg) Grunow	1	0.003
Cocconeis placentula var. placentula Ehrenberg	4	0.010
Ctenophora pulchella (Ralfs ex Kützing) Williams et Round	1	0.003
Discotella stelligera (Hustedt) Houk et Klee	6	0.015
Encyonema lunatum (Smith) Van Heurck	2	0.005
Encyonema mesianum (Cholnoky) Mann in Round, Crawford and Mann	2	0.005
Eolimna minima (Grunow) Lange-Bertalot	1	0.003
Epithemia spp.	1	0.003
Eunotia flexuosa Brébisson ex Kützing	3	0.008
Eunotia incisa Smith ex Gregory	1	0.003
Eunotia intermedia (Krasske ex Hustedt) Nörpel et Lange-Bertalot	2	0.005
Eunotia minor (Kützing) Grunow in Van Heurck	1	0.003
Eunotia pectinalis (Müller) Rabenhorst	1	0.003
Eunotia praerupta var. bidens (Ehrenberg) Grunow	1	0.003
Eunotia praerupta var. monodon f. polaris (A. Berg) Symoens	2	0.005
Eunotia septentrionalis Østrup	1	0.003
Eunotia serra var. diadema (Ehrenberg) Patrick	1	0.003
Eunotia vanheurckii Patrick	1	0.003
Eunotia spp.	8	0.020
Fragilaria capucina var. gracilis (Østrup) Hustedt	5	0.013
Fragilaria crotonensis Kitton	2	0.005
Fragilaria (GV) 14-15/10 u central area	8	0.020
Gomphonema acuminatum Ehrenberg	1	0.003
Gomphonema parvulum (Kützing) Kützing	3	0.008
Gomphonema spp.	8	0.020
Luticola mutica (Kützing) Mann	1	0.003
Navicula cryptotenella Lange-Bertalot ex Krammer et Lange-Bertalot	8	0.020
Navicula difficillima Hustedt	2	0.005
Navicula leptostriata Jörgansen	3	0.008
Navicula ventralis Krasske	1	0.003
Navicula small	2	0.005
Navicula spp.	1	0.003
Neidium affine (Ehrenberg) Pfitzer	2	0.005
Nitzschia amphibia Grunow	2	0.005
Nitzschia gracilis Hantzsch ex Rabenhorst	1	0.003
Nitzschia intermedia Hantzsch ex Cleve et Grunow	2	0.005
Nitzschia linearis (Agardh ex Smith) Smith	3	0.008
Nitzschia palea (Kützing) Smith	2	0.005
Nitzschia spp.	4	0.010
Nupela vitiosa (Schimanski) Siver et Hamilton	5	0.013
Nupela wellneri (Lange-Bertalot) Lange-Bertalot	2	0.005
Pinnularia subanglica Krammer	1	0.003
Pinnularia spp.	4	0.010
Placoneis explanata (Hustedt) Cox	2	0.005
Planothidium lanceolatum (Brébisson ex Kützing) Lange-Bertalot	4	0.010
Pseudostaurosira brevistriata (Grunow) Williams et Round	5	0.013
Pseudostaurosira parasitica (Smith) Morales	3	0.008
Pseudostaurosira trainorii Morales	2	0.005
Rhopalodia gibba (Ehrenberg) Müller	1	0.003
Rossithidium linearis (Smith) Round et Bukhtiyarova	2	0.005
Rossithidium pusillum (Grunow) Round et Bukhtiyarova	3	0.008
Sellaphora disjuncta (Hustedt) Mann	6	0.015
Sellaphora pupula (Kützing) Mereschkowsky	1	0.003
Sellaphora rectangularis (Gregory) Lange-Bertalot et Metzeltin	3	0.008
Sellaphora seminulum (Grunow) Mann	5	0.013
Sellaphora sp.	1	0.003
Stauroneis phoenicenteron (Nitzsch) Ehrenberg	2	0.005
Stauroneis spp.	1	0.003
Staurosira construens var. venter (Ehrenberg) Hamilton	15	0.038
Staurosirella pinnata (Ehrenberg) Williams et Round	51	0.128
Staurosirella pinnata var. lancettula (Schumann) Siver et Hamilton	33	0.083
Surirella linearis Smith	1	0.003
Tabellaria flocculosa (strain IIIp) sensu Koppen	2	0.005
Tabellaria flocculosa (strain IV) sensu Koppen	1	0.003
Tabellaria spp.	3	0.008
unknown pennate	2	0.005
TOTAL	400	1.000

BAD RIVER WETLANDS

Ashland County

BAD RIVER SLOUGH - DENOMIE

2006

TAXA	Number	Prop.
Achnanthes spp.	2	0.005
Achnanthes levanderi Hustedt	2	0.005
Achnanthes subatomoides (Hustedt) Lange-Bertalot et Archibald	10	0.025
Achnanthidium minutissimum (Kützing) Czarnecki	2	0.005
Asterionella formosa Hassal	5	0.012
Asterionella ralfsii var. americana Körner	3	0.007
Aulacoseira ambigua (Grunow) Simonsen	8	0.020
Aulacoseira distans (Ehrenberg) Simonsen	8	0.020
Aulacoseira granulata (Ehrenberg) Simonsen	4	0.010
Aulacoseira humilis (Cleve-Euler) Genkal & Trifonova	4	0.010
Aulacoseira italica (Ehrenberg) Simonsen	3	0.007
Aulacoseira lacustris (Grunow) Krammer	21	0.051
Aulacoseira nygaardii Camburn	8	0.020
Aulacoseira subarctica (Müller) Haworth	4	0.010
Aulacoseira valida (Grunow) Krammer	2	0.005
Aulacoseira sp. 1?	4	0.010
Aulacoseira VV	8	0.020
Aulacoseira spp.	4	0.010
Cocconeis placentula (RV)	2	0.005
Cocconeis placentula var. placentula Ehrenberg	2	0.005
Cymbella cuspidata Kützing	1	0.002
Diatoma ehrenbergii Kützing	15	0.037
Diatoma spp.	1	0.002
Discotella glomerata (Hustedt) Houk et Klee	2	0.005
Discotella stelligera (Hustedt) Houk et Klee	6	0.015
Eolimna minima (Grunow) Lange-Bertalot	2	0.005
Eolimna subminuscula Manguin	2	0.005
Epithemia turgida (Ehrenberg) Kützing	1	0.002
Eunotia bilunaris (Ehrenberg) Mills	1	0.002
Eunotia curvata f. bergii Woodhead & Tweed	1	0.002
Eunotia flexuosa Brébisson ex Kützing	3	0.007
Eunotia formica Ehrenberg	1	0.002
Eunotia hexaglyphis Ehrenberg	1	0.002
Eunotia hexaglyphis var. 1 Ehrenberg	1	0.002
Eunotia incisa Smith ex Gregory	4	0.010
Eunotia intermedia (Krasske ex Hustedt) Nörpel et Lange-Bertalot	1	0.002
Eunotia pectinalis (Müller) Rabenhorst	1	0.002
Eunotia pirla Carter et Flower	1	0.002
Eunotia praerupta var. bidens (Ehrenberg) Grunow	1	0.002
Eunotia septentrionalis Østrup	4	0.010
Eunotia zasuminensis (Cabejszekowna) Körner	1	0.002
Eunotia spp.	6	0.015
Fragilaria (GV) 14-15/10 u central area	17	0.042
Fragilaria capucina var. gracilis (Østrup) Hustedt	3	0.007
Fragilaria radians (Kützing) Williams et Round	9	0.022
Gomphonema exilissimum (Grunow in Van Heurck) Lange-Bertalot et Reichardt in Lange-Bertalot and Metzeltin	13	0.032
Gomphonema subclavatum var. commutatum (Grunow) Mayer	2	0.005
Gomphonema spp.	2	0.005
Lemnicola hungarica (Grunow) Round et Basson	4	0.010
Navicula cryptocephala Kützing	10	0.025
Navicula tantula Hustedt	1	0.002
Navicula utermoehlii Hustedt	1	0.002
Navicula small	4	0.010
Navicula spp.	6	0.015
Nitzschia communis Rabenhorst	4	0.010
Nitzschia gracilis Hantzsch ex Rabenhorst	5	0.012
Nitzschia spp.	4	0.010
Nupela fennica (Hustedt) Lange-Bertalot in Krammer and Lange-Bertalot	4	0.010
Nupela vitiosa (Schimanski) Siver et Hamilton	1	0.002
Nupela wellneri (Lange-Bertalot) Lange-Bertalot	2	0.005
Nupela sp. 1 NRSA DME?	2	0.005
Pinnularia pluvianiformis Krammer	1	0.002
Pinnularia spp.	3	0.007
Planothidium lanceolatum (Brébisson ex Kützing) Lange-Bertalot	1	0.002
Pseudostaurosira brevistriata (Grunow) Williams et Round	20	0.049
Pseudostaurosira trainorii Morales	32	0.078
Rossithidium pusillum (Grunow) Round et Bukhtiyarova	6	0.015
Sellaphora disjuncta (Hustedt) Mann	2	0.005
Sellaphora pupula (Kützing) Meresckowsky	1	0.002
Sellaphora seminulum (Grunow) Mann	16	0.039
Stauroneis kriegeri Patrick	3	0.007
Stauroneis spp.	3	0.007
Staurosira construens var. venter (Ehrenberg) Hamilton	1	0.002
Staurosirella pinnata (Ehrenberg) Williams et Round	1	0.002
Staurosirella pinnata var. lancettula (Schumann) Siver et Hamilton	46	0.113
Synedra rumpens Kützing	2	0.005
Tabellaria fenestrata (Lyngbye) Kützing	1	0.002
Tabellaria flocculosa (strain III) sensu Koppen	1	0.002
Tabellaria flocculosa (strain IV) sensu Koppen	3	0.007
Tabellaria flocculosa var. linearis Koppen	2	0.005
Tabellaria spp.	1	0.002
unknown pennate	5	0.012
TOTAL	408	1.000

BAD RIVER WETLANDS		
Ashland County		
BIG ROUND		
2006		
	Number	Prop.
TAXA		
Achnanthes spp.	6	0.015
Achnanthes biasolettiana var. subatomus Lange-Bertalot	2	0.005
Achnanthidium minutissimum (Kützing) Czarnecki	20	0.050
Achnanthidium sp. 1 PJG	1	0.003
Amphipleura pellucida (Kützing) Kützing	2	0.005
Amphora copulata (kützing) Schoeman et Archibald	1	0.003
Aulacoseira lacustris (Grunow) Krammer	1	0.003
Aulacoseira nygaardii Camburn	2	0.005
Aulacoseira subarctica (Müller) Haworth	2	0.005
Aulacoseira spp.	2	0.005
Caloneis silicula fo. alpina (Cleve) Krammer in Krammer and Lange-Bertalot	1	0.003
Chamaepinnularia witkowskii (Lange-Bertalot et Metzeltin) Kulikovskiy et Lange Bertlot	2	0.005
Cocconeis placentula (RV)	3	0.008
Cocconeis placentula var. euglypta (Ehrenberg) Grunow	3	0.008
Cocconeis placentula var. placentula Ehrenberg	7	0.018
Craticula halophila (Grunow) Mann	1	0.003
Craticula sp.	1	0.003
Ctenophora pulchella (Ralfs ex Kützing) Williams et Round	4	0.010
Cyclostephanos tholiformis Stoermer, Håkansson et Theriot	1	0.003
Cymbella spp.	3	0.008
Discotella stelligera (Hustedt) Houk et Klee	1	0.003
Encyonema minutum (Hilse) Mann	2	0.005
Encyonema silesiacum (Bleisch) Mann	4	0.010
Eolimna minima (Grunow) Lange-Bertalot	2	0.005
Epithemia spp.	8	0.020
Epithemia turgida (Ehrenberg) Kützing	1	0.003
Eunotia bilunaris (Ehrenberg) Mills	1	0.003
Eunotia curvata f. bergii Woodhead & Tweed	2	0.005
Eunotia flexuosa Brébisson ex Kützing	7	0.018
Eunotia formica Ehrenberg	1	0.003
Eunotia incisa Smith ex Gregory	9	0.023
Eunotia intermedia (Krasske ex Hustedt) Nörpel et Lange-Bertalot	1	0.003
Eunotia minor (Kützing) Grunow in Van Heurck	2	0.005
Eunotia praerupta var. bidens (Ehrenberg) Grunow	2	0.005
Eunotia vanheurckii Patrick	3	0.008
Eunotia spp.	9	0.023
Fragilaria capucina var. gracilis (Østrup) Hustedt	9	0.023
Fragilaria capucina var. mesolepta Rabenhorst	3	0.008
Fragilaria crotonensis Kitton	2	0.005
Fragilaria tenera (Smith) Lange-Bertalot	2	0.005
Fragilaria (GV) 14-15/10 u central area	46	0.115
Frustulia spp.	1	0.003
Gomphonema affine var. insigne (Gregory) Andrews	2	0.005
Gomphonema angustatum (Kützing) Rabenhorst	1	0.003
Gomphonema gracile Ehrenberg emend Van Heurck	2	0.005
Gomphonema micropus Kützing	5	0.013
Gomphonema spp.	18	0.045
Hantzschia amphioxys (Ehrenberg) Grunow	2	0.005
Mayamaea atomus var. permitis (Hustedt) Lange-Bertalot	3	0.008
Meridion circulare var. constrictum (Ralfs) Van Heurck	2	0.005
Navicula cryptocephala Kützing	4	0.010
Navicula cryptotenella Lange-Bertalot ex Krammer et Lange-Bertalot	4	0.010
Navicula difficillima Hustedt	2	0.005
Navicula cf. jentzschii Grunow	3	0.008
Navicula radiosa Kützing	4	0.010
Navicula recens Lange-Bertalot	2	0.005
Navicula tantula Hustedt	4	0.010
Navicula utermoehlii Hustedt	2	0.005
Navicula viridula (Kützing) Kützing emend. Van Heurck	2	0.005
Navicula spp.	13	0.033
Neidium spp.	1	0.003
Nitzschia amphibia Grunow	2	0.005
Nitzschia communis Rabenhorst	2	0.005
Nitzschia frustulum (Kützing) Grunow	8	0.020
Nitzschia gracilis Hantzsch ex Rabenhorst	4	0.010
Nitzschia inconspicua Grunow	1	0.003
Nitzschia palea (Kützing) Smith	11	0.028
Nitzschia spp.	9	0.023
Nupela vitiosa (Schimanski) Siver et Hamilton	2	0.005
Pinnularia subcapitata var. subrostrata Krammer	1	0.003
Pinnularia spp.	2	0.005
Planothidium lanceolatum (Brébisson ex Kützing) Lange-Bertalot	7	0.018
Platessa conspicua (Mayer) Lange-Bertalot	2	0.005
Pseudostaurosira brevistriata (Grunow) Williams et Round	1	0.003
Rhoicosphenia curvata (Kützing) Grunow ex Rabenhorst	1	0.003
Rhopalodia gibba (Ehrenberg) Müller	1	0.003
Rossithidium linearis (Smith) Round et Bukhtiyarova	11	0.028
Sellaphora pupula (Kützing) Meresckowsky	1	0.003
Stauroneis kriegeri Patrick	1	0.003
Stauroneis spp.	1	0.003
Staurosira construens Ehrenberg	1	0.003
Staurosirella leptostauron var. dubia (Grunow) Edlund	1	0.003
Staurosirella pinnata var. lancettula (Schumann) Siver et Hamilton	22	0.055
Surirella linearis Smith	2	0.005
Surirella spp.	1	0.003
Synedra rumpens Kützing	1	0.003
Synedra rumpens var. familiaris (Kützing) Hustedt	16	0.040
Synedra sp.	6	0.015
Tabellaria fenestrata (Lyngbye) Kützing	9	0.023
Tabellaria flocculosa (strain IV) sensu Koppen	3	0.008
Tabellaria spp.	1	0.003
unknown pennate	10	0.025
TOTAL	400	1.000

BAD RIVER WETLANDS
Ashland County

WOOD CREEK

2006

TAXA	Number	Prop.
Achnanthes spp.	9	0.022
Achnanthes biasolettiana var. subatomus Lange-Bertalot	13	0.032
Achnanthes levanderi Hustedt	2	0.005
Achnanthes minutissima var. macrocephala Hustedt	4	0.010
Achnanthes oblongella Østrup	3	0.007
Achnanthes sp. 1	1	0.002
Achnanthes suchlandtii Hustedt	5	0.012
Achnanthidium minutissimum (Kützing) Czarnecki	7	0.017
Achnanthidium minutissimum var. gracillima (Meister) Lange-Bertalot	2	0.005
cf. Adlafia multnomahii Morales et Le	2	0.005
Amphora copulata (kützing) Schoeman et Archibald	1	0.002
Aulacoseira ambigua (Grunow) Simonsen	2	0.005
Aulacoseira nygaardii Camburn	1	0.002
Aulacoseira VV	1	0.002
Aulacoseira spp.	2	0.005
Cavinula jaernefelti (Hustedt) Mann et Stickle	2	0.005
Cocconeis placentula (RV)	1	0.002
Cocconeis placentula var. lineata (Ehrenberg) Van Heurck	1	0.002
Cocconeis placentula var. placentula Ehrenberg	8	0.020
Craticula cuspidata	1	0.002
Cyclostephanos dubius (Frick) Round	3	0.007
Cyclotella atomus Hustedt	2	0.005
Cymbella spp.	2	0.005
Diploneis elliptica (Kützing) Cleve	2	0.005
Discotella stelligera (Hustedt) Houk et Klee	2	0.005
Encyonema minutum morphotype 2 (Hilse) Mann	1	0.002
Encyonema silesiacum (Bleisch) Mann	4	0.010
Encyonopsis subminuta Krammer & Reichardt	1	0.002
Eolimna minima (Grunow) Lange-Bertalot	4	0.010
Eunotia bilunaris (Ehrenberg) Mills	1	0.002
Eunotia flexuosa Brébisson ex Kützing	8	0.020
Eunotia incisa Smith ex Gregory	8	0.020
Eunotia pectinalis (Müller) Rabenhorst	2	0.005
Eunotia pirla Carter et Flower	4	0.010
Eunotia praerupta var. bidens (Ehrenberg) Grunow	2	0.005
Eunotia soleirolii (Kützing) Rabenhorst	1	0.002
Eunotia subarcuatoides Alles, Nörpel et Lange-Bertalot	1	0.002
Eunotia vanheurckii Patrick	5	0.012
Eunotia spp.	9	0.022
Fragilaria capucina var. gracilis (Østrup) Hustedt	9	0.022
Fragilaria crotonensis Kitton	6	0.015
Fragilaria tenera (Smith) Lange-Bertalot	3	0.007
Fragilaria vaucheriae (Kützing) Petersen	8	0.020
Fragilaria (GV) 14-15/10 u central area	16	0.040
Gomphonema acuminatum Ehrenberg	1	0.002
Gomphonema affine var. insigne (Gregory) Andrews	2	0.005
Gomphonema truncatum Ehrenberg	2	0.005
Gomphonema patrickii Kociolek et Stoermer	2	0.005
Gomphonema spp.	9	0.022
Karayevia clevei (Grunow) Bukhtiyarova	1	0.002
Navicula cryptocephala Kützing	3	0.007
Navicula cryptotenella Lange-Bertalot ex Krammer et Lange-Bertalot	5	0.012
Navicula dententa Hustedt	2	0.005
Navicula difficillima Hustedt	2	0.005
Navicula lanceolata (Agardh) Ehrenberg	1	0.002
Navicula radiosa Kützing	1	0.002
Navicula rhynchocephala Kützing	3	0.007
Navicula seminuloides Hustedt	1	0.002
Navicula submuralis Hustedt	6	0.015
Navicula spp.	10	0.025
Nitzschia amphibia Grunow	4	0.010
Nitzschia frustulum (Kützing) Grunow	14	0.035
Nitzschia gracilis Hantzsch ex Rabenhorst	1	0.002
Nitzschia linearis (Agardh ex Smith) Smith	6	0.015
Nitzschia palea (Kützing) Smith	1	0.002
Nitzschia palea var. debilis (Kützing) Grunow	3	0.007
Nitzschia sp. 1	1	0.002
Nitzschia spp.	2	0.005
Pinnularia subanglica Krammer	1	0.002
Pinnularia sp. 1?	2	0.005
Planothidium dubium (Grunow) Round et Bukhtiyarova	5	0.012
Planothidium lanceolatum (Brébisson ex Kützing) Lange-Bertalot	3	0.007
Psammothidium didymum (Hustedt) Bukhtiyarova et Round	2	0.005
Psammothidium sacculum (Carter in Carter and Bailey-Watts) Bukhtiyarova in Bukhtiyarova and Round	5	0.012
Pseudostaurosira brevistriata (Grunow) Williams et Round	1	0.002
Pseudostaurosira parasitica (Smith) Morales	2	0.005
Pseudostaurosira trainorii Morales	4	0.010
Rhopalodia gibba (Ehrenberg) Müller	1	0.002
Rossithidium linearis (Smith) Round et Bukhtiyarova	13	0.032
Sellaphora disjuncta (Hustedt) Mann	3	0.007
Sellaphora seminulum (Grunow) Mann	2	0.005
Sellaphora sp.	3	0.007
Stauroneis kriegeri Patrick	1	0.002
Stauroneis smithii var. incisa Pantocsek	2	0.005
Staurosira construens Ehrenberg	3	0.007
Staurosira construens var. binodis (Ehrenberg) Hamilton	4	0.010
Staurosirella leptostauron (Ehrenberg) Williams et Round	2	0.005
Staurosirella leptostauron var. dubia (Grunow) Edlund	5	0.012
Staurosirella pinnata (Ehrenberg) Williams et Round	18	0.045
Staurosirella pinnata var. lancettula (Schumann) Siver et Hamilton	22	0.055
Surirella linearis Smith	1	0.002
Synedra acus var. angustissima (Grunow) Van Heurck	2	0.005
Synedra rumpens var. familiaris (Kützing) Hustedt	4	0.010
Synedra sp.	3	0.007
Tabellaria fenestrata (Lyngbye) Kützing	1	0.002
Tabellaria flocculosa (strain III) sensu Koppen	9	0.022
Tabellaria flocculosa (strain IIIp) sensu Koppen	1	0.002
Tabellaria flocculosa (strain IV) sensu Koppen	3	0.007
Tabellaria flocculosa var. linearis Koppen	1	0.002
Tabellaria spp.	3	0.007
unknown pennate	14	0.035
TOTAL	401	1.000

BAD RIVER WETLANDS		
Ashland County		
BEAR TRAP CREEK		
2006	Lots of sediment, may hav	
	Number	Prop.
TAXA		
Achnanthes spp.	1	0.003
Achnanthidium minutissimum (Kützing) Czarnecki	3	0.008
Achnanthidium sp. 1 PJG	4	0.010
cf. Adlafia multnomahii Morales et Le	3	0.008
Amphipleura pellucida (Kützing) Kützing	1	0.003
Aulacoseira spp.	1	0.003
Chamepinnularia short form	1	0.003
Cocconeis placentula (RV)	11	0.028
Cocconeis placentula var. euglypta (Ehrenberg) Grunow	2	0.005
Cocconeis placentula var. lineata (Ehrenberg) Van Heurck	4	0.010
Cocconeis placentula var. placentula Ehrenberg	11	0.028
Craticula cuspidata	1	0.003
Craticula riparia (Hustedt) Lange-Bertalot	2	0.005
Ctenophora pulchella (Ralfs ex Kützing) Williams et Round	2	0.005
Cyclostephanos sp.	1	0.003
Cyclotella meneghiniana Kützing	4	0.010
Cymatopleura elliptica (Brébisson) Smith	1	0.003
Encyonema minutum (Hilse) Mann	1	0.003
Encyonema silesiacum (Bleisch) Mann	2	0.005
Epithemia adnata (Kützing) Brébisson	1	0.003
Epithemia frickei Krammer	1	0.003
Epithemia turgida (Ehrenberg) Kützing	2	0.005
Epithemia spp.	5	0.013
Eunotia bilunaris (Ehrenberg) Mills	13	0.033
Eunotia curvata f. bergii Woodhead & Tweed	3	0.008
Eunotia incisa Smith ex Gregory	10	0.025
Eunotia maior (Smith) Rabenhorst	2	0.005
Eunotia praerupta Ehrenberg	1	0.003
Eunotia vanheurckii Patrick	1	0.003
Eunotia spp.	12	0.030
Fragilaria capucina var. gracilis (Østrup) Hustedt	6	0.015
Fragilaria capucina var. mesolepta Rabenhorst	2	0.005
Fragilaria (GV) 14-15/10 u central area	6	0.015
Fragilaria sp. (GV 14-16/10u, no central area)	11	0.028
Gomphonema acuminatum Ehrenberg	1	0.003
Gomphonema affine var. insigne (Gregory) Andrews	5	0.013
Gomphonema exilissimum (Grunow in Van Heurck) Lange-Bertalot et Reichardt in Lange-Bertalot and Metzeltin	5	0.013
Gomphonema kobayasii Kociolek et Kingston	1	0.003
Gomphonema minutum (Agardh) Agardh	1	0.003
Gomphonema minutum fo. curtum (Hustedt) Lange-Bertalot et Reichardt	2	0.005
Gomphonema subclavatum (Grunow) Grunow	6	0.015
Gomphonema spp.	3	0.008
Hantzschia amphioxys (Ehrenberg) Grunow	1	0.003
Hippodonta capitata (Ehrenberg) Lange-Bertalot, Metzeltin et Witkowski	6	0.015
Karayevia clevei (Grunow) Bukhtiyarova	2	0.005
Lemnicola hungarica (Grunow) Round et Basson	1	0.003
Luticola goeppertiana (Bleisch) Mann	1	0.003
Navicula cryptocephala Kützing	13	0.033
Navicula cryptotenella Lange-Bertalot ex Krammer et Lange-Bertalot	8	0.020
Navicula difficillima Hustedt	2	0.005
Navicula menisculus Schumann	1	0.003
Navicula obdurata Hohn et Hellermann	3	0.008
Navicula recondita (Hustedt) Lange-Bertalot	13	0.033
Navicula rhynchocephala Kützing	3	0.008
Navicula schadei Krasske	1	0.003
Navicula subplacentula Hustedt	1	0.003
Navicula ventralis Krasske	2	0.005
Navicula small	2	0.005
Navicula spp.	10	0.025
Neidium spp.	1	0.003
Nitzschia acicularis (Kützing) Smith	1	0.003
Nitzschia amphibia fo. frauenfeldii (Grunow) Lange-Bertalot	1	0.003
Nitzschia amphibia Grunow	10	0.025
Nitzschia bremensis Hustedt	1	0.003
Nitzschia dissipata (Kützing) Grunow	3	0.008
Nitzschia filiformis (Smith) Van Heurck	12	0.030
Nitzschia fonticola Grunow	8	0.020
Nitzschia gracilis Hantzsch ex Rabenhorst	5	0.013
Nitzschia linearis (Agardh ex Smith) Smith	1	0.003
Nitzschia palea (Kützing) Smith	7	0.018
Nitzschia palea var. debilis (Kützing) Grunow	17	0.043
Nitzschia siliqua Archibald	2	0.005
Nitzschia spp.	22	0.055
Nupela vitiosa (Schimanski) Siver et Hamilton	7	0.018
Pinnularia ignobilis (Krasske) Cleve-Euler	2	0.005
Pinnularia spp.	1	0.003
Placoneis elginensis (Gregory) Cox	1	0.003
Planothidium biporomum (Hohn et Hellerman) Lange-Bertalot	5	0.013
Planothidium dubium (Grunow) Round et Bukhtiyarova	2	0.005
Planothidium lanceolatum (Brébisson ex Kützing) Lange-Bertalot	8	0.020
Rhoicosphenia curvata (Kützing) Grunow ex Rabenhorst	2	0.005
Rhopalodia gibba (Ehrenberg) Müller	6	0.015
Rossithidium linearis (Smith) Round et Bukhtiyarova	7	0.018
Rossithidium petersennii (Hustedt) Round et Bukhtiyarova	1	0.003
Sellaphora laevissima (Kützing) Mann	3	0.008
Sellaphora pupula (Kützing) Mereschkowsky	1	0.003
Stauroneis smithii Grunow	2	0.005
Staurosirella pinnata (Ehrenberg) Williams et Round	1	0.003
Surirella minuta Brébisson	3	0.008
Synedra rumpens var. familiaris (Kützing) Hustedt	5	0.013
Synedra ulna (Nitzsch) Ehrenberg	1	0.003
Synedra sp.	6	0.015
Tabellaria flocculosa (strain IV) sensu Koppen	2	0.005
Tabellaria flocculosa var. linearis Koppen	1	0.003
unknown pennate	16	0.040
TOTAL	400	1.000

BAD RIVER WETLANDS		
Ashland County		
KAKAGON FISH PONDS		
2006		
	Number	Prop.
TAXA		
Achnanthes biasolettiana var. subatomus Lange-Bertalot	2	0.005
Achnanthidium minutissimum (Kützing) Czarnecki	12	0.030
Achnanthidium sp. 1 PJG	4	0.010
Adlafia minuscula (Grunow) Lange-Bertalot	1	0.003
Amphipleura pellucida (Kützing) Kützing	1	0.003
Amphora copulata (kützing) Schoeman et Archibald	1	0.003
Amphora ovalis (Kützing) Kützing	4	0.010
Aulacoseira italica (Ehrenberg) Simonsen	3	0.008
Aulacoseira spp.	1	0.003
Cocconeis placentula (RV)	5	0.013
Cocconeis placentula var. lineata (Ehrenberg) Van Heurck	4	0.010
Cocconeis placentula var. placentula Ehrenberg	16	0.040
Craticula cuspidata (Kützing) Mann	2	0.005
Cyclostephanos tholiformis Stoermer, Håkansson et Theriot	1	0.003
Cymbella hauckii Van Heurck	1	0.003
Cymbella spp.	3	0.008
Discotella glomerata (Hustedt) Houk et Klee	8	0.020
Encyonema silesiacum (Bleisch) Mann	12	0.030
Eolimna minima (Grunow) Lange-Bertalot	4	0.010
Epithemia spp.	1	0.003
Eunotia bilunaris (Ehrenberg) Mills	1	0.003
Eunotia curvata var. subarcuata (Näegeli) Woodhead et Tweed	1	0.003
Eunotia diodon Ehrenberg	2	0.005
Eunotia flexuosa Brébisson ex Kützing	4	0.010
Eunotia formica Ehrenberg	1	0.003
Eunotia incisa Smith ex Gregory	6	0.015
Eunotia intermedia (Krasske ex Hustedt) Nörpel et Lange-Bertalot	3	0.008
Eunotia minor (Kützing) Grunow in Van Heurck	5	0.013
Eunotia pectinalis (Müller) Rabenhorst	1	0.003
Eunotia vanheurckii Patrick	1	0.003
Eunotia spp.	17	0.043
Fragilaria capucina var. capucina Desmazières	3	0.008
Fragilaria capucina var. gracilis (Østrup) Hustedt	11	0.028
Fragilaria (GV) 14-15/10 u central area	10	0.025
Gomphonema angustum Agardh	5	0.013
Gomphonema gracile Ehrenberg emend Van Heurck	1	0.003
Gomphonema minutum (Agardh) Agardh	1	0.003
Gomphonema parvulum (Kützing) Kützing	10	0.025
Gomphonema spp.	5	0.013
Gyrosigma spp.	2	0.005
Hippodonta capitata (Ehrenberg) Lange-Bertalot, Metzeltin et Witkowski	3	0.008
Mayamaea atomus var. permitis (Hustedt) Lange-Bertalot	2	0.005
Navicula cf. dententa Hustedt	1	0.003
Navicula cryptocephala Kützing	17	0.043
Navicula cryptotenella Lange-Bertalot ex Krammer et Lange-Bertalot	16	0.040
Navicula difficillima Hustedt	12	0.030
Navicula lanceolata (Agardh) Ehrenberg	1	0.003
Navicula tantula Hustedt	6	0.015
Navicula utermoehlii Hustedt	2	0.005
Navicula spp.	6	0.015
Neidium affine var. amphirhynchus (Ehrenberg) Cleve	2	0.005
Neidium binode (Ehrenberg) Hustedt	1	0.003
Nitzschia amphibia Grunow	4	0.010
Nitzschia bremensis Hustedt	1	0.003
Nitzschia frustulum (Kützing) Grunow	7	0.018
Nitzschia gracilis Hantzsch ex Rabenhorst	12	0.030
Nitzschia palea (Kützing) Smith	4	0.010
Nitzschia palea var. debilis (Kützing) Grunow	31	0.078
Nitzschia spp.	12	0.030
Nupela vitiosa (Schimanski) Siver et Hamilton	8	0.020
Nupela wellneri (Lange-Bertalot) Lange-Bertalot	1	0.003
Nupela sp.	1	0.003
Pinnularia spp.	1	0.003
Placoneis explanata (Hustedt) Cox	1	0.003
Planothidium lanceolatum (Brébisson ex Kützing) Lange-Bertalot	3	0.008
Pseudostaurosira brevistriata (Grunow) Williams et Round	1	0.003
Rhopalodia gibba (Ehrenberg) Müller	3	0.008
Rossithidium linearis (Smith) Round et Bukhtiyarova	8	0.020
Sellaphora pupula (Kützing) Meresckowsky	6	0.015
Sellaphora sp.	2	0.005
Stauroneis anceps Ehrenberg	1	0.003
Stauroneis anceps fo. gracilis Rabenhorst	8	0.020
Stauroneis nobilis Schumann	1	0.003
Stauroneis nobilis var. baconiana (Stodder) Reimer	2	0.005
Stauroneis phoenicenteron (Nitzsch) Ehrenberg	1	0.003
Stauroneis spp.	4	0.010
Staurosirella leptostauron var. dubia (Grunow) Edlund	1	0.003
Synedra rumpens var. familiaris (Kützing) Hustedt	10	0.025
Synedra subrhombica Nygaard	2	0.005
Synedra ulna (Nitzsch) Ehrenberg	4	0.010
Tabellaria fenestrata (Lyngbye) Kützing	3	0.008
unknown pennate	12	0.030
TOTAL	400	1.000

BAD RIVER WETLANDS		
Ashland County		
REYKDAL		
2006		
	Number	Prop.
TAXA		
Achnanthes levanderi Hustedt	2	0.005
Achnanthidium sp. 1 PJG	1	0.003
Aulacoseira lacustris (Grunow) Krammer	25	0.063
Aulacoseira nygaardii Camburn	64	0.160
Aulacoseira perglabra var. florinae (Camburn) Haworth	2	0.005
Aulacoseira valida (Grunow) Krammer	11	0.028
Aulacoseira spp.	3	0.008
Encyonema silesiacum (Bleisch) Mann	8	0.020
Eunotia bilunaris (Ehrenberg) Mills	6	0.015
Eunotia carolina Patrick	1	0.003
Eunotia curvata f. bergii Woodhead & Tweed	14	0.035
Eunotia exigua (Brébisson ex Kützing) Rabenhorst	1	0.003
Eunotia fallax Cleve	1	0.003
Eunotia flexuosa Brébisson ex Kützing	16	0.040
Eunotia formica Ehrenberg	1	0.003
Eunotia hexaglyphis Ehrenberg	2	0.005
Eunotia intermedia (Krasske ex Hustedt) Nörpel et Lange-Bertalot	2	0.005
Eunotia nymanniana Grunow in Van Heurck	1	0.003
Eunotia paludosa Grunow	20	0.050
Eunotia pectinalis (Müller) Rabenhorst	2	0.005
Eunotia pectinalis var. ventricosa (Ehrenberg) Grunow	2	0.005
Eunotia perpusilla Grunow	2	0.005
Eunotia pirla Carter et Flower	1	0.003
Eunotia praerupta Ehrenberg	4	0.010
Eunotia praerupta var. bidens (Ehrenberg) Grunow	1	0.003
Eunotia septentrionalis Østrup	5	0.013
Eunotia soleirolii (Kützing) Rabenhorst	1	0.003
Eunotia tenella (Grunow) Cleve	2	0.005
Eunotia vanheurckii Patrick	7	0.018
Eunotia spp.	14	0.035
Fragilaria capucina var. gracilis (Østrup) Hustedt	4	0.010
Fragilaria radians (Kützing) Williams et Round	3	0.008
Fragilaria tenera (Smith) Lange-Bertalot	1	0.003
Gomphonema affine var. insigne (Gregory) Andrews	6	0.015
Gomphonema angustatum (Kützing) Rabenhorst	2	0.005
Gomphonema gracile Ehrenberg emend Van Heurck	8	0.020
Gomphonema spp.	3	0.008
Mayamaea atomus var. permitis (Hustedt) Lange-Bertalot	1	0.003
Meridion circulare var. constrictum (Ralfs) Van Heurck	1	0.003
Navicula lanceolata (Agardh) Ehrenberg	1	0.003
Navicula radiosa Kützing	9	0.023
Navicula tantula Hustedt	3	0.008
Navicula spp.	3	0.008
Neidium affine (Ehrenberg) Pfitzer	1	0.003
Neidium amphigomphus (Ehrenberg) Pfitzer	2	0.005
Neidium binode (Ehrenberg) Hustedt	1	0.003
Neidium spp.	3	0.008
Nitzschia cf. brevissima Grunow ex Van Heurck	2	0.005
Nitzschia communis Rabenhorst	2	0.005
Nitzschia frustulum (Kützing) Grunow	2	0.005
Nitzschia gracilis Hantzsch ex Rabenhorst	10	0.025
Nitzschia palea (Kützing) Smith	1	0.003
Nitzschia palea var. debilis (Kützing) Grunow	8	0.020
Nitzschia paleacea Grunow ex Van Heurck	1	0.003
Nitzschia spp.	4	0.010
Nupela fennica (Hustedt) Lange-Bertalot in Krammer and Lange-Bertalot	2	0.005
Nupela vitiosa (Schimanski) Siver et Hamilton	2	0.005
Nupela small (GV)	3	0.008
Pinnularia abaujensis var. linearis (Hustedt) Patrick	1	0.003
Pinnularia biceps Gregory	3	0.008
Pinnularia brauniana (Grunow) Mills	7	0.018
Pinnularia microstauron (Ehrenberg) Cleve	1	0.003
Pinnularia sinistra Krammer	4	0.010
Pinnularia subanglica Krammer	8	0.020
Pinnularia spp.	8	0.020
Rossithidium linearis (Smith) Round et Bukhtiyarova	5	0.013
Sellaphora disjuncta (Hustedt) Mann	2	0.005
Sellaphora pupula (Kützing) Meresckowsky	1	0.003
Sellaphora rectangularis (Gregory) Lange-Bertalot et Metzeltin	1	0.003
Sellaphora seminulum (Grunow) Mann	1	0.003
Stauroneis kriegeri Patrick	4	0.010
Stauroneis phoenicenteron (morphotype 2) (Nitzsch) Ehrenberg	2	0.005
Stauroneis phoenicenteron (Nitzsch) Ehrenberg	3	0.008
Stauroneis spp.	4	0.010
Stenopterobia anceps (Lewis) Brébisson ex Van Heurck	1	0.003
Synedra rumpens var. familiaris (Kützing) Hustedt	4	0.010
Synedra subrhombica Nygaard	2	0.005
Tabellaria fenestrata (Lyngbye) Kützing	1	0.003
Tabellaria flocculosa (strain III) sensu Koppen	1	0.003
Tabellaria flocculosa (strain IV) sensu Koppen	14	0.035
Tabellaria flocculosa var. linearis Koppen	8	0.020
Tabellaria spp.	1	0.003
unknown pennate	2	0.005
TOTAL	400	1.000

BAD RIVER WETLANDS		
Ashland County		
ELM CREEK		
2006		
	Number	Prop.
TAXA		
Achnanthes spp.	4	0.010
Achnanthes levanderi Hustedt	4	0.010
Achnanthidium minutissimum (Kützing) Czarnecki	4	0.010
Achnanthidium sp. 1 PJG	4	0.010
Asterionella ralfsii var. americana Körner	1	0.003
Aulacoseira italica (Ehrenberg) Simonsen	4	0.010
Chamaepinnularia begeri	7	0.018
Cocconeis placentula (RV)	1	0.003
Cocconeis placentula var. placentula Ehrenberg	1	0.003
Craticula halophila (Grunow) Mann	5	0.013
Encyonema minutum morphotype 1 (Hilse) Mann	16	0.040
Encyonema minutum morphotype 2 (Hilse) Mann	8	0.020
Encyonopsis subminuta Krammer & Reichardt	3	0.008
Eunotia bilunaris (Ehrenberg) Mills	5	0.013
Eunotia curvata f. bergii Woodhead & Tweed	4	0.010
Eunotia flexuosa Brébisson ex Kützing	19	0.048
Eunotia incisa Smith ex Gregory	2	0.005
Eunotia intermedia (Krasske ex Hustedt) Nörpel et Lange-Bertalot	4	0.010
Eunotia minor (Kützing) Grunow in Van Heurck	2	0.005
Eunotia pirla Carter et Flower	4	0.010
Eunotia praerupta Ehrenberg	3	0.008
Eunotia septentrionalis Østrup	4	0.010
Eunotia cf. soleirolii (Kützing) Rabenhorst	2	0.005
Eunotia spp.	6	0.015
Fragilaria tenera (Smith) Lange-Bertalot	17	0.043
Gomphonema angustatum (Kützing) Rabenhorst	4	0.010
Gomphonema exilissimum (Grunow in Van Heurck) Lange-Bertalot et Reichardt in Lange-Bertalot and Metzeltin	2	0.005
Gomphonema gracile Ehrenberg emend Van Heurck	2	0.005
Gomphonema minutum (Agardh) Agardh	1	0.003
Hantzschia amphioxys (Ehrenberg) Grunow	4	0.010
Luticola mutica (Kützing) Mann	4	0.010
Meridion circulare var. constrictum (Ralfs) Van Heurck	8	0.020
Navicula cryptotenella Lange-Bertalot ex Krammer et Lange-Bertalot	2	0.005
Navicula joubaudii Germain	2	0.005
Navicula leptostriata Jörgansen	12	0.030
Navicula recens Lange-Bertalot	9	0.023
Navicula tantula Hustedt	2	0.005
Navicula utermoehlii Hustedt	8	0.020
Navicula spp.	5	0.013
Neidium affine var. amphirhynchus (Ehrenberg) Cleve	1	0.003
Neidium amphigomphus (Ehrenberg) Pfitzer	1	0.003
Neidium binode (Ehrenberg) Hustedt	1	0.003
Nitzschia fonticola Grunow	6	0.015
Nitzschia gracilis Hantzsch ex Rabenhorst	36	0.090
Nitzschia palea (Kützing) Smith	17	0.043
Nitzschia sp. 1	7	0.018
Nitzschia spp.	21	0.053
Nupela lapidosa (Krasske) Lange-Bertalot	3	0.008
Nupela vitiosa (Schimanski) Siver et Hamilton	5	0.013
Pinnularia brauniana (Grunow) Mills	5	0.013
Pinnularia microstauron (Ehrenberg) Cleve	2	0.005
Pinnularia neomajor var. intermedia Krammer	3	0.008
Pinnularia nodosa (Ehrenberg) Smith	4	0.010
Pinnularia polyonca var. similis Krammer	2	0.005
Pinnularia pseudogibba Krammer	1	0.003
Pinnularia subanglica Krammer	6	0.015
Pinnularia spp.	8	0.020
Rossithidium linearis (Smith) Round et Bukhtiyarova	6	0.015
Sellaphora disjuncta (Hustedt) Mann	2	0.005
Sellaphora laevissima (Kützing) Mann	1	0.003
Sellaphora seminulum (Grunow) Mann	1	0.003
Stauroneis anceps Ehrenberg	1	0.003
Stauroneis anceps fo. gracilis Rabenhorst	2	0.005
Stauroneis phoenicenteron (Nitzsch) Ehrenberg	2	0.005
Stauroneis phoenicenteron var. 1(Nitzsch) Ehrenberg	1	0.003
Surirella linearis Smith	1	0.003
Tabellaria fenestrata (Lyngbye) Kützing	3	0.008
Tabellaria flocculosa (strain IV) sensu Koppen	21	0.053
Tabellaria flocculosa var. linearis Koppen	8	0.020
Tabellaria quadriseptata Knudsen	1	0.003
Tabellaria spp.	5	0.013
unknown pennate	17	0.043
TOTAL	400	1.000

BAD RIVER WETLANDS		
Ashland County		
STARVIN MARVIN		
2006	Lots of sediment, may hav	
	Number	Prop.
TAXA		
Achnanthes spp.	4	0.010
Achnanthes levanderi Hustedt	4	0.010
Achnanthes subatomoides (Hustedt) Lange-Bertalot et Archibald	2	0.005
Achnanthidium minutissimum (Kützing) Czarnecki	11	0.027
Achnanthidium minutissimum var. scotica (Carter) Lange-Bertalot	2	0.005
Achnanthidium sp. 1 PJG	22	0.055
Aulacoseira distans (Ehrenberg) Simonsen	4	0.010
Aulacoseira lacustris (Grunow) Krammer	1	0.002
Aulacoseira pusilla (Meister) Tuji et Houki	2	0.005
Aulacoseira VV	4	0.010
Brachysira brebissonii Ross	2	0.005
Cocconeis placentula (RV)	11	0.027
Cocconeis placentula var. euglypta (Ehrenberg) Grunow	1	0.002
Cocconeis placentula var. lineata (Ehrenberg) Van Heurck	5	0.012
Cocconeis placentula var. placentula Ehrenberg	20	0.050
Craticula cuspidata	1	0.002
Cymbella spp.	1	0.002
Encyonema silesiacum (Bleisch) Mann	3	0.007
Epithemia adnata (Kützing) Brébisson	1	0.002
Epithemia turgida (Ehrenberg) Kützing	5	0.012
Eunotia bilunaris (Ehrenberg) Mills	7	0.017
Eunotia flexuosa Brébisson ex Kützing	2	0.005
Eunotia incisa Smith ex Gregory	6	0.015
Eunotia intermedia (Krasske ex Hustedt) Nörpel et Lange-Bertalot	2	0.005
Eunotia pirla Carter et Flower	5	0.012
Eunotia praerupta var. bidens (Ehrenberg) Grunow	2	0.005
Eunotia praerupta var. monodon f. polaris (A. Berg) Symoens	1	0.002
Eunotia spp.	7	0.017
Fragilaria capucina var. gracilis (Østrup) Hustedt	2	0.005
Fragilaria (GV) 14-15/10 u central area	30	0.075
Frustulia vulgaris (Thwaites) deToni	1	0.002
Gomphonema affine var. insigne (Gregory) Andrews	2	0.005
Gomphonema exilissimum (Grunow in Van Heurck) Lange-Bertalot et Reichardt in Lange-Bertalot and Metzeltin	1	0.002
Gomphonema spp.	2	0.005
Karayevia clevei (Grunow) Bukhtiyarova	2	0.005
Luticola mutica (Kützing) Mann	2	0.005
Navicula cryptotenella Lange-Bertalot ex Krammer et Lange-Bertalot	8	0.020
Navicula difficillima Hustedt	1	0.002
Navicula lanceolata (Agardh) Ehrenberg	6	0.015
Navicula moskalii Metzeltin, Witkowski et Lange-Bertalot	1	0.002
Navicula tantula Hustedt	10	0.025
Navicula utermoehlii Hustedt	2	0.005
Navicula small	17	0.042
Navicula spp.	4	0.010
Neidium spp.	1	0.002
Nitzschia amphibia Grunow	6	0.015
Nitzschia fonticola Grunow	17	0.042
Nitzschia frustulum (Kützing) Grunow	2	0.005
Nitzschia gracilis Hantzsch ex Rabenhorst	11	0.027
Nitzschia linearis (Agardh ex Smith) Smith	9	0.022
Nitzschia palea (Kützing) Smith	4	0.010
Nitzschia palea var. debilis (Kützing) Grunow	2	0.005
Nitzschia pusilla Grunow	9	0.022
Nitzschia spp.	14	0.035
Nupela fennica (Hustedt) Lange-Bertalot in Krammer and Lange-Bertalot	4	0.010
Nupela vitiosa (Schimanski) Siver et Hamilton	8	0.020
Pinnularia abaujensis var. rostrata (Patrick) Patrick	1	0.002
Pinnularia brauniana (Grunow) Mills	2	0.005
Pinnularia maior (Kützing) Rabenhorst	1	0.002
Pinnularia spp.	1	0.002
Placoneis placentula (Ehrenberg) Hienzerling	1	0.002
Planothidium dubium (Grunow) Round et Bukhtiyarova	2	0.005
Planothidium lanceolatum (Brébisson ex Kützing) Lange-Bertalot	14	0.035
Pseudostaurosira brevistriata (Grunow) Williams et Round	1	0.002
Rhoicosphenia curvata (Kützing) Grunow ex Rabenhorst	2	0.005
Rhopalodia gibba (Ehrenberg) Müller	1	0.002
Rossithidium linearis (Smith) Round et Bukhtiyarova	5	0.012
Rossithidium pusillum (Grunow) Round et Bukhtiyarova	2	0.005
Sellaphora disjuncta (Hustedt) Mann	7	0.017
Sellaphora laevissima (Kützing) Mann	2	0.005
Sellaphora pupula (Kützing) Mereschkowsky	1	0.002
Sellaphora sp.	1	0.002
Stauroneis anceps fo. gracilis Rabenhorst	1	0.002
Stauroneis nobilis var. baconiana (Stodder) Reimer	1	0.002
Stauroneis smithii Grunow	1	0.002
Staurosirella pinnata (Ehrenberg) Williams et Round	1	0.002
Staurosirella pinnata var. lancettula (Schumann) Siver et Hamilton	9	0.022
Surirella angusta Kützing	1	0.002
Synedra acus Kützing	1	0.002
Synedra rumpens var. familiaris (Kützing) Hustedt	6	0.015
Synedra sp.	5	0.012
Tabellaria flocculosa (strain IV) sensu Koppen	4	0.010
unknown pennate	11	0.027
TOTAL	401	1.000

BAD RIVER WETLANDS		
Ashland County		
MADIGAN ROAD		
2006		
	Number	Prop.
TAXA		
Achnanthes biasolettiana var. subatomus Lange-Bertalot	2	0.005
Achnanthidium minutissimum (Kützing) Czarnecki	2	0.005
Aulacoseira lacustris (Grunow) Krammer	2	0.005
Aulacoseira subarctica (Müller) Haworth	1	0.003
Aulacoseira spp.	1	0.003
Chamaepinnularia mediocris (Krasske) Lange-Bertalot	2	0.005
Cymbella naviculiformis Auerswald ex Héribaud	2	0.005
Cymbella spp.	2	0.005
Encyonema lunatum (Smith) Van Heurck	5	0.013
Encyonema mesianum (Cholnoky) Mann in Round, Crawford and Mann	3	0.008
Encyonema minutum morphotype 2 (Hilse) Mann	4	0.010
Encyonema silesiacum (Bleisch) Mann	8	0.020
Eolimna minima (Grunow) Lange-Bertalot	2	0.005
Eunotia bilunaris (Ehrenberg) Mills	4	0.010
Eunotia curvata f. bergii Woodhead & Tweed	11	0.028
Eunotia curvata var. subarcuata (Näegeli) Woodhead et Tweed	11	0.028
Eunotia fallax Cleve	1	0.003
Eunotia flexuosa Brébisson ex Kützing	8	0.020
Eunotia incisa Smith ex Gregory	2	0.005
Eunotia minor (Kützing) Grunow in Van Heurck	1	0.003
Eunotia naegelii Migula	1	0.003
Eunotia paludosa Grunow	4	0.010
Eunotia pectinalis (Müller) Rabenhorst	1	0.003
Eunotia praerupta Ehrenberg	5	0.013
Eunotia septentrionalis Østrup	1	0.003
Eunotia serra Ehrenberg	2	0.005
Eunotia spp.	17	0.043
Fragilaria capucina var. gracilis (Østrup) Hustedt	3	0.008
Fragilaria tenera (Smith) Lange-Bertalot	1	0.003
Fragilariforma constricta (Ehrenberg) Williams et Round	1	0.003
Frustulia crassinervia (Brebisson) Lange-Bertalot et Krammer	2	0.005
Gomphonema angustatum (Kützing) Rabenhorst	3	0.008
Gomphonema gracile Ehrenberg emend Van Heurck	3	0.008
Gomphonema spp.	2	0.005
Luticola mutica (Kützing) Mann	1	0.003
Meridion circulare var. constrictum (Ralfs) Van Heurck	2	0.005
Navicula cryptocephala Kützing	2	0.005
Navicula phyllepta Kützing	1	0.003
Navicula radiosa Kützing	62	0.155
Navicula utermoehlii Hustedt	2	0.005
Navicula small	2	0.005
Neidium spp.	2	0.005
Nitzschia frustulum (Kützing) Grunow	20	0.050
Nitzschia gracilis Hantzsch ex Rabenhorst	52	0.130
Nitzschia palea (Kützing) Smith	2	0.005
Nitzschia palea var. debilis (Kützing) Grunow	13	0.033
Nitzschia subacicularis Hustedt	12	0.030
Nitzschia spp.	13	0.033
Nupela vitiosa (Schimanski) Siver et Hamilton	8	0.020
Pinnularia abaujensis var. subundulata (Mayer ex Hustedt) Patrick	1	0.003
Pinnularia brauniana (Grunow) Mills	2	0.005
Pinnularia subanglica Krammer	2	0.005
Pinnularia spp.	5	0.013
Rossithidium linearis (Smith) Round et Bukhtiyarova	8	0.020
Rossithidium pusillum (Grunow) Round et Bukhtiyarova	1	0.003
Sellaphora pupula (Kützing) Meresckowsky	3	0.008
Sellaphora sp.	2	0.005
Stauroneis anceps fo. gracilis Rabenhorst	4	0.010
Stauroneis nobilis var. baconiana (Stodder) Reimer	3	0.008
Stauroneis phoenicenteron (Nitzsch) Ehrenberg	2	0.005
Stauroneis spp.	2	0.005
Stenopterobia anceps (Lewis) Brébisson ex Van Heurck	2	0.005
Synedra subrhombica Nygaard	11	0.028
Synedra sp.	1	0.003
Tabellaria fenestrata (Lyngbye) Kützing	8	0.020
Tabellaria flocculosa (strain IV) sensu Koppen	16	0.040
Tabellaria flocculosa var. linearis Koppen	3	0.008
unknown pennate	10	0.025
TOTAL	400	1.000